



LEADCLAD
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WHEELING METAL & MFG. CO.

Glendale
LEADCLAD ROOFS

*"All that a roof
should be"*



WHEELING METAL & MANUFACTURING CO.
WHEELING, W. VA.

Glendale

is the distinguishing name of a line of superior roofing tiles and shingles manufactured only in Glendale, W. Va., by the Wheeling Metal & Manufacturing Company, Wheeling, W. Va.

These roofings can be furnished in the following materials:

LEADCLAD

LEADCLAD COPPER

HAND GALVANIZED TERNE PLATE

PAINTED TERNE PLATE

TIGHT COATED GALVANIZED STEEL

Classics
AT
7205
W571
1929

Advantages of An All Metal Roof

THE parts of a roof that bear the hardest service are the valleys, gutters, and downspouts.

No matter what class of roofing material may be selected for the main portion of the roof, it is significant that metal is invariably specified for the parts that have to bear the brunt of the battle against the elements.

Metal is recognized as the material best suited for this hard service, and centuries of trial and experiment with other materials have not succeeded in displacing it.

It would seem only sensible that the material yielding the greatest service under the severest attack should be used for the entire roof.

Metal roofing has the greatest strength for its weight of any material known.

Metal roofing is not only fire-resistant—it is absolutely *fireproof*. Flying sparks from neighborhood fires cannot endanger it—fire within is kept from spreading. Fire insurance authorities are agreed that all-metal roofing is the most fireproof of all roofs.



The Leadclad red tile roof surmounting walls of cream and brown gives to this bungalow incomparable beauty and charm



Model fireproof steel frame residence, built by Walter Bates Steel Corporation, Gary, Ind. The roof is covered with Leadclad fire and lightningproof shingles, Salem pattern

Metal roofing is a conductor of electricity, and if furnished with a ground connection, will carry off to the earth the mightiest bolts of lightning, without harm to the building or its contents.

This fact is well established, and the U. S. Bureau of Standards has endorsed metal roofing for this reason.

A metal roof is proof against breakage. Carelessly thrown stones, or falling bricks from your chimney,

cannot break your roof, as so often happens with roofs of tile or slate. Frost will not crack it—ice will not get under and raise it. It is even proof against earthquake shocks.

The use of metal for roofing, in most cases, permits of more economical construction of the building, because of its light weight per square foot, as compared with other roofing materials.

In their search for beauty of form

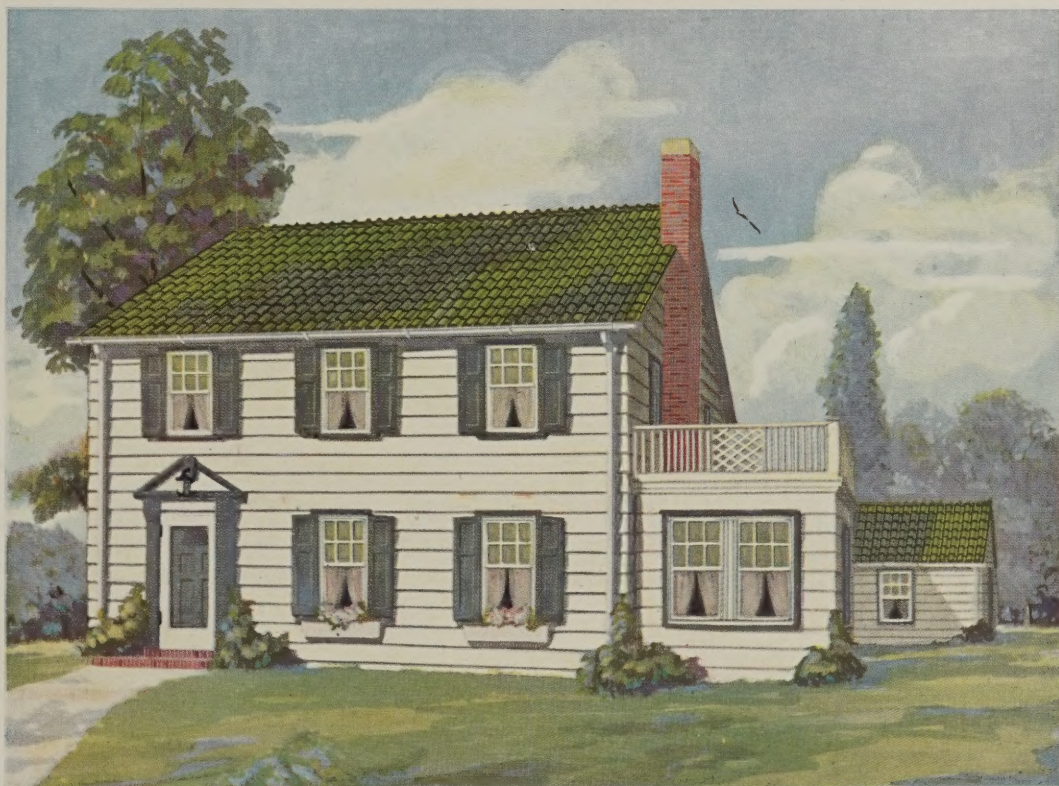
and color many builders have strayed far afield, and economy and service have been almost entirely overlooked.

But costly fires, severe storms, and expensive repair bills have brought saner views. The more discerning architects and builders are turning again to metal.

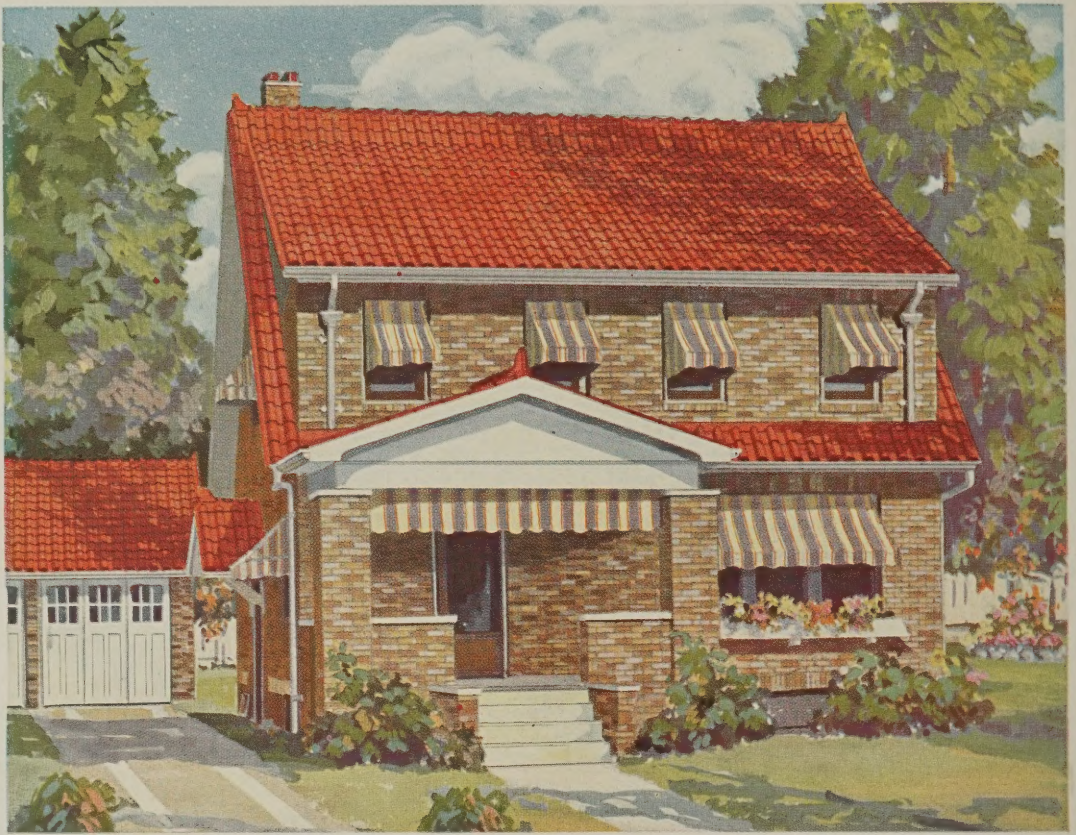
For many years metal roofings could lay no claim to beauty. Being mostly flat and uninteresting in character, they were favored only for matter-of-fact usefulness where appearance could be ignored.

However, the strong demand for roofing of character, to harmonize with building designs of increasing beauty, has brought about a development of metal roofing along the same lines, and today roofs made entirely of metal have beauty and charm not surpassed by any other material.

In length of life and service, economy in weight, economy in maintenance, and in safeguarding life and property against fire or storm, no other roofing can approach metal roofing.



The Leadclad-green Spanish tile roof of this dignified Colonial residence harmonizes beautifully with the blue shutters and ivory tinted walls



*This Colonial home owes much of its distinction to the combination of buff and brown brick with red tile roof (Leadclad)
Residence of A. W. Fromm, Ft. Wayne, Ind.*

Selecting Your Roof

NO FORM of roofing can effectively serve all purposes. The type of building, the pitch of the roof, the strength of the supporting structure are factors that must be taken into account before deciding which type of roofing to use.

The roof that would be satisfactory for the warehouse, factory, or tall office building might not be at all desirable for your home.

In the first instance durability,

safety, and economy are the all-important factors.

When deciding upon the roof of your home, you cannot afford to overlook these features, for they are of first importance, but to them must be added those of beauty and harmony.

Beauty and long life must go hand in hand to make the ideal roof for the residence.

Too often beauty is obtained at the

expense of quality, and in the end both beauty and economy are lost.

For many years we have specialized in high grade roofing, and our shingles and tile have been known the country over as embodying all that is good in such products.

The ambition to produce a super-quality material—a roofing material with greater weather resistance than anything upon the market—at a price within the reach of all—led us into untrodden ways — and so about twenty years ago Leadclad was first introduced to the public.

From the time of its introduction

to the present time, Leadclad has grown steadily in the esteem of the building public, and it would be hard to find a district where Leadclad is not known and used.

The thousands of churches, schools, and homes that have been beautified and protected by Leadclad Spanish tile, Leadclad ornamental shingles, and Leadclad standing seam roofing are your assurance that Leadclad has been tried and proved.

Glendale roofings are made in various forms and in several grades to meet every demand of the builder, but this book is dedicated particularly to the needs of the home builder.



*Mr. W. H. Scates' residence, Bristol, Va.
Roofed with Leadclad shingles, Monarch pattern,
and Leadclad gutters, downspouts, and other trim*



Apartments, office buildings, and mercantile buildings of every type are greatly improved in appearance by a Leadclad Spanish tile roof

Your Choice of Materials

Glendale is the family name of a complete line of shingles and tiles, consisting of Glendale Spanish tiles, Glendale Duplex tiles, and the Plainfield, Salem, Eureka, Monarch, Standard, and Suwanee designs of Glendale shingles.

All of the above products are manufactured in the following grades: Leadclad Copper, Leadclad, Hand-dipped Galvanized, Red Painted, Green Painted, and Tight Coat Galvanized.

Leadclad copper tiles and shingles are produced from copper sheets, which are protected by a heavy coat of pure lead. They are formed into tiles or shingles after being coated.

Leadclad tiles and shingles are produced from copper-bearing steel sheets, protected by a thick coat of pure lead.

Hand-dipped galvanized tiles and shingles are formed from high grade copper-bearing roofing tin plates and after being formed are then dipped one at a time by hand in a bath of molten zinc.

Red or green painted tiles or shingles are stamped from copper-bearing roofing tin, and are then hand-dipped separately in a bath of high quality paint. The coating of paint is extra heavy and all edges are thoroughly protected.

Tight Coat galvanized tile and shingles are stamped from Apex Tight Coat galvanized sheets, which have been the standard of quality in galvanized roofing sheets for many years.

No finer quality galvanized sheet shingles are made anywhere.

We challenge any manufacturer to equal the quality of our Glendale shingles and tiles.

Advantages of Leadclad

LEADCLAD is a sheet of high grade copper-bearing steel encased in pure lead—a sheet of steel in an armor of lead, the steel for strength, the lead for weather resistance. The jacket or sheath of lead is a perfect covering, free from the imperfections common to many coated products.

This combination of strength, lightness, and long life was the consummation of long years of research.

Into the development and manu-

facture of Leadclad has been put the accumulated experience of thirty years of manufacturing all the various forms of coated materials, and nothing has been omitted to make this product one that may safely be used where permanence and long weather-wear are desired.

Every care is used in the selection of the copper-bearing steel sheets used as the base of Leadclad, and each sheet is carefully treated before



*West Side Auto Service Co.
Chillicothe, Ohio
Leadclad Spanish tile, gutter, conductor, etc.*



*Dr. H. W. Bachman's residence, Bristol, Tenn.
Roofed with Monarch Leadclad shingles*

applying the coating of pure lead.

The production of Leadclad is held within a safe limit, in order that the manufacture and inspection may be careful and unhurried.

It is possible to cheapen any material. We are not trying to see how cheap Leadclad can be made, but are constantly bending every effort toward improving its quality.

In using Leadclad roofings you are not making an experiment with a new, untried material.

Leadclad has been in actual use for nearly twenty years, and has been tried and proved under the most exacting conditions.

Its high resistance to corrosion has been found of great value in coal mining areas, and in mill districts, where coal smoke combines with the moisture in the atmosphere to form biting acids which readily attack metal work of every description. Against the salt laden fogs and mists along the seacoast, which are very destructive to metals, Leadclad has proved to be the most economical and desirable material available.

Leadclad may be bent, crimped, hammered, or worked as easily as ordinary galvanized or tin coated steel, without injury to the lead coating which is so vital to its long life.

LEAD EVERLASTING

LEAD was known to the ancients for its imperishable qualities, and with the genius that is man's heritage they adapted it to many uses.

In the time of Job, centuries before the Christian era, it was customary to carve permanent records upon tablets of lead, and inset them in stone.

"O that my words . . . had been graven with an iron pen and lead, in the rock forever." *Job xix 23 and 24*

Lead guards alike the stately cathedral and the coffined dead. Lofty domes and spires of lead rear themselves against the elements, while far

beneath, in crypt and vault, the great of earth, shrouded in their leaden sarcophagi, sleep on through the centuries.

Ancient shrines and temples were roofed with lead. The Wheel of Time still turns on, the Shuttle of the Weaver moves ever back and forth, but those monuments to man's genius still remain—living evidence of the enduring service of lead in preserving and protecting his treasured belongings from the ravages of rust and decay. We do not greatly exaggerate if we speak of lead as imperishable.



*Belmont Service Station, Bellaire, Ohio.
Leadclad Spanish tile roof and sheet metal trim, including ornamental ceiling over driveway*

Historic Lead Roofs

*T*HROUGHOUT the civilized world, lead roofs have been used upon the most notable examples of architecture in existence. Though handicapped by the great weight of lead slabs—the only form of lead at hand—the ancient builders used it for its enduring quality.

Because of its weather resistance and the ease with which it could be hammered into sheets, lead was early used as a roofing and gutter material. For thousands of years lead plates and sheets have been used for that purpose.

One of the noteworthy examples of its use upon ancient buildings is the Pantheon at Rome, which was built by the Emperor Hadrian in the one hundred and twenty-third year of our Lord. Worn and stained by the passing of eighteen long centuries, it has been kept from total decay by a roof of lead.

For more than three centuries a lead roof has covered St. Peter's, the famous cathedral at Rome. Windsor Castle, dating back to the days of the Norman Conquest, has eave troughs, gutters, and conductor pipes of lead. One of the more modern installations bears the date 1589. A pipe head, leader pipe, bands, and gutters, all of lead, are still in use upon a house in Winchester, England, built in 1600.

The leaded dome upon Barnards

Hall Inn, London, was put on in 1553.

The lead roof upon St. Mark's Cathedral at Venice has withstood the sun, wind, and rain for over seven hundred years.

The age of the lead roof on the Radcliffe Library of Oxford University is one hundred and seventy-six years; and there are in London other lead roofs of greater age.

Guarding the mountain passes leading to the capital of Russian Caucasasia, the lead-clad Garrison Citadel has kept its vigil against hostile hordes for centuries.

Moscow is noted for its churches. The church of Vassily-Blatjenni, with its many domes and steeples, each of different design, was built as an oddity in Muscovite church architecture. The church architects of Moscow have a hard time designing anything individual because with over two thousand churches in the city, it is difficult to find anything that has not been done before. The roof of this church, because of its inaccessibility, was covered with solid sheets of lead, to make it as nearly permanent as possible.

St. Paul's Cathedral, the creation of England's most noted architect, Sir Christopher Wren, is another example of the utility and durability of lead.

Although the great walls of the



"Radcliffe Camera," Oxford University, England, part of Bodleian Library where the very oldest manuscripts are kept. Was formed about 1160 A. D. by English scholars from the University of Paris. Lead used for roofing



Opera House, Paris, built by Charles Garnier, 1861-74. A national shrine for poetry, music, drama and allied arts. Largest theatre building in the world although third in seating capacity. Lead used extensively to protect its roof against the elements



St. Paul's Cathedral, London, England, largest Protestant church in the World. Designed by Sir Christopher Wren, construction commenced in 1675 and completed in 1710. Lead covers its big dome



St. Mark's Cathedral, Venice, famous masterpiece of Byzantine architecture, dating from the tenth century. Once every merchant who journeyed to the Orient was compelled to bring back something to adorn this edifice. Lead covers its roof and spires

cathedral, now over two centuries old, are yielding to the assaults of time, the lead roof is still in fine condition.

Wherever it has been thought necessary to have the most durable roofing material obtainable, lead has been chosen. A notable instance was in

the construction of the Greenwich Observatory. The great domes of this world-famous building were encased in lead over two hundred and fifty years ago. It seems but fitting that this structure, dedicated to the observation and regulation of time, should be protected by lead, the metal that defies time itself.

Why Lead Roofs Endure

*A*LL metals have one thing in common. When exposed to the weather — when rain, snow, sleet, wind, and sun beat upon them, when the twin foes, air and water, attack them—their outer defences crumble.

With most metals this is but the beginning of the end.

When moisture and atmosphere first attack iron or steel a film of rust is formed. As the attack progresses, the depth of the rust increases until all the metal has become rust—then we say rust has destroyed it.

For this reason—their very eagerness to become rust—iron and steel are of but little value when exposed to the weather unless coated with a metal that is rust-resistant.

And of all metals that are available for this purpose, lead has been found to give the greatest protection.

It is true that lead, when first exposed to the weather, shows the same apparent tendency to yield as other

metals. But this is only a stratagem, a predetermined move in defense.

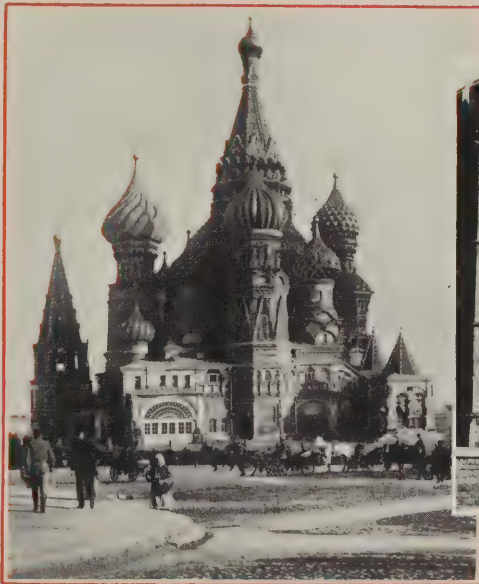
What appears to be a surface corrosion is but the formation of lead hydroxide—the result of the first attack of air and water upon metallic lead.

Then comes the second move. The lead hydroxide rapidly turns to basic lead carbonate, which in a short time becomes a thin, hard film, an armor, impervious alike to air and water.

The first move in defeat has been turned into impregnable resistance.

It is this thin, impervious film of lead carbonate that keeps an old lead bullet, buried in the ground for ages, in excellent condition.

It is this same armor-like film that has kept lead roofs defiant of age and time for centuries, and it is this same thin film upon the surface of the heavy lead coating of Leadclad that makes Leadclad a worthy successor to those time-defying roofs of old.



Assisi Blatjenni, Moscow, Russia. Strangest specimen of a church ever built, embodying fragments of Gothic, Moorish, Indian and other styles of architecture. Lead covers most of its roof area including twenty different domes and spires. Built 1553-1559



Windsor Castle Gateway, London, England, completely equipped with eaves troughs, gutters, and conductor pipes of lead. Some of the more recent lead work bears the date of 1589. This castle dates from the days of the Norman Conquest



The Pantheon, Rome, Italy. Built A. D. 123 by Emperor Hadrian. Finest architectural creation of ancient Roman origin and burial place of kings and emperors. Dome and roof covered with sheets of lead



St. Peter's Cathedral, Rome. Largest church in Christendom. Built between 1506 and 1627. Among its architects were Bramante, Raphael, and Michelangelo. A lead roof has protected it for over 300 years



*Fig. 1. Assembly of Glendale Spanish tiles, showing true tapered shape characteristic of clay tiles and otherwise found only in Leadclad. No nails exposed to weather. Sidelocks guaranteed waterproof without soldering.
The high test roof*

Glendale Spanish Tiles

Glendale Spanish Tiles are used upon widely differing classes of buildings with equally good effect.

While used extensively upon churches, schools, public buildings of every description, and upon ornate, beautiful, and costly residences, there is no place where their charm and beauty is more effective than upon the small or medium priced home.

The vogue of the bizarre and multi-color effect in roof ornamentation seems to be upon the wane, and the taste of the discerning and the artistic home builder is turning again to the beautiful soft monochrome ef-

fect so characteristic of Spanish tile.

The olive-crowned slopes of ancient Granada and Cadiz, dotted with their tiled roofs in softly glowing red, have furnished the inspiration for many painters; and those red tile roofs, surmounting walls of white or gray, with their background of living green, have in turn been the inspiration and despair of builders in every land. Artistic and beautiful in the mass, and harmonizing wonderfully well with nature in her changing hues, they enrich and make lovely any home upon which they are seen.

Unfortunately, the great weight of

clay tiles demands an unusually strong supporting structure. Aside from the high cost of the clay tiles themselves, the expense of the necessary structural strength makes their use out of the question in many cases. Nor can they be used readily upon old buildings for the same reason.

Glendale Spanish Tiles weigh only one-tenth as much as clay tiles; and they cost far less.

Glendale Tiles are not only a faithful representation of the old Spanish clay tiles, but have features that the clay tiles cannot possess. They are fireproof, lightningproof, strong,

light, economical, unbreakable, and absolutely weathertight.

Glendale tiles do not rely upon felt lining or sheathing paper to turn the water. They cannot leak; for the extra high side lock, and tight, snug overlap combine to make them watertight. Ample provision has been made for expansion and contraction in any climate, and nail heads of each tile are protected from the weather by the adjoining tile. The special high lock used in Glendale Spanish tile and accessories permits of its being applied without any special tools and *eliminates the necessity of any soldering.*



*United Brethren Church, Ponce, Porto Rico,
roofed with Leadclad Spanish tiles*



Assembly of Glendale Duplex tiles. Illustration shows two tiles in lower row, and one and a half tiles in the upper row. A new low priced tile, giving an attractive effect at very economical first cost

Glendale Duplex Tiles

A NEW tile, made in duplex or twin form—two tiles stamped from one sheet—that is the Glendale Duplex tile.

This handsome tile was developed to meet the demand for a low priced tile roof for inexpensive buildings, or where it is desired to obtain the maximum in appearance at the minimum of expenditure.

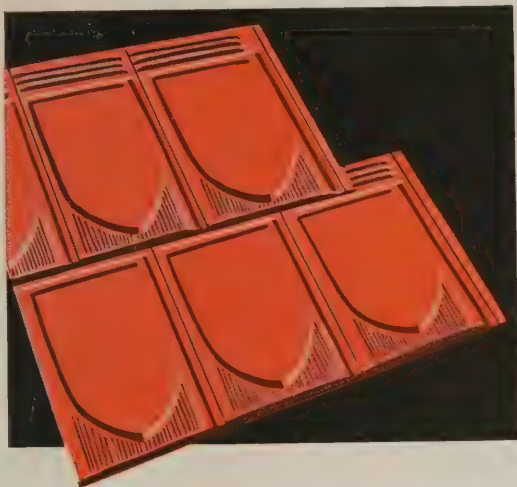
Glendale Duplex Tiles are made in Leadclad, Hand-dipped Galvanized, Red or Green Tin Painted, and Tight Coat Galvanized.

They are made with the same careful attention to detail as the Glendale Spanish Tiles, and give the same long

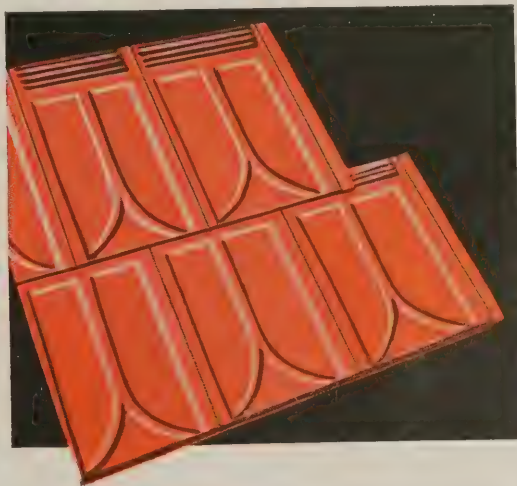
service as the respective grades of our other high quality tiles and shingles.

Glendale Duplex Tiles have an exceptionally high butt end with a correspondingly heavy shadow line. They are exceptionally rapid of application, with simple but handsome fittings, and may be applied as easily as metal shingles, without the use of solder or special tools.

The builders of small homes, refreshment stands, filling stations, and the like, will find the use of Glendale Duplex Tiles made of Leadclad especially desirable from the viewpoint of economy as well as beauty and long life.



Eureka pattern, Glendale shingles. Showing method of laying. No nail holes exposed. No soldering required



Standard pattern. Glendale shingles, showing method of laying

Glendale Shingles

THE Wheeling Metal & Manufacturing Company is the largest manufacturer of metal shingles in this country.

Our shingles are of the highest quality, in both material and design, and our own special machinery, designed for large-scale manufacture, makes it possible to offer these shingles to you at very attractive prices.

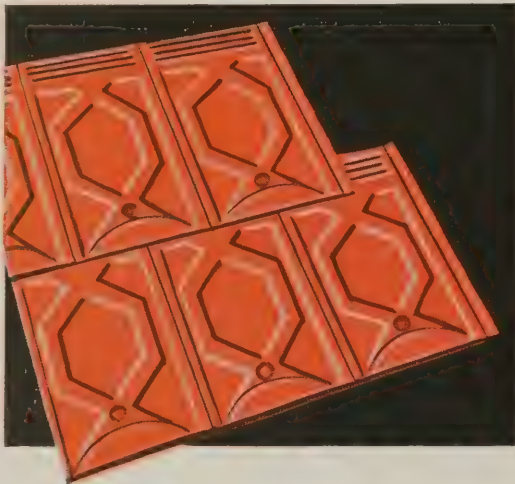
Six patterns are shown in this book. The Salem and Plainfield patterns are finding especial favor on account of their beautiful simplicity of design. A Plainfield roof cannot be distinguished from slate, and the Salem design with its high butt end, and heavy shadow line along the lower edge, resembles a wood shingle roof to a remarkable degree.

The other patterns were designed to meet the demand for ornamental forms, and have a great vogue throughout the country.

We have been making these shingles for thirty years, and the beautiful homes upon which shingles of our early manufacture are still giving service is proof of their utility and worth.

Glendale Shingles are formed with a specially designed side lock which permits them to be quickly and easily applied. Absolutely no soldering is required.

This side lock is our exclusive design—it provides contact, under tension, at three points; it covers all nail heads, allows for contraction and expansion; yet is perfectly watertight



Suwanee Pattern. Glendale shingles, showing method of laying



Monarch pattern. Glendale shingles, showing method of laying

in the heaviest and most driving rain.

Across the top of each Glendale Shingle are three and one-half deep corrugations which are lapped under the reverse hook of the next course. The value of this will be appreciated

by the practical roofer because this extra deep overlap effectively prevents leakage through driving rains or snows.

Thirty years of experience has proved that the additional amount of



The home of J. O. Susong, Bristol, Tenn. Formerly roofed with slate, replaced with Leadclad Eureka style shingles

metal used in our shingle to insure complete protection against rains and storms is justified, and as a result more Glendale shingles are being used than of any other make.

With Glendale shingles are furnished all necessary fittings, such as Ridge Roll, Valley, Gutter, Flashing, etc., made to harmonize with the roof. The trimmings are all designed to carry out the advantages of metal shingles and are applied so that all nail heads are protected by the lock which ties the entire installation into one complete unit.

Plainfield, Salem, Eureka, Monarch, Standard, Suwanee—as already indicated, any one of the six designs of shingles may be chosen, whether the material to be used is Leadclad Copper, Leadclad, Hand-dipped Gal-



Salem pattern, Glendale shingles. Furnished in natural lead finish or painted red or green. Note: The Plainfield pattern is practically the same as here shown, except that it has a lower butt and therefore throws a less distinct shadowline from its lower end

vanized, Red Painted, Green Painted or Tight Coat Galvanized. All are made with equal facility and efficiency by specially designed equipment in our plant.



Residence at South Williamsport, Pa., re-roofed with Leadclad Eureka style shingles



*Montpelier, Orange Co., Va., built about 1795.
Home of James Madison. Dr. William Thornton, Architect
Standing Seam Roof*

Standing Seam Roofs

THE architects of the old world have for many centuries demonstrated their belief in the use of the lead roof, not only for practical but also for aesthetic reasons. In Italy, France, and England we find everywhere buildings of architectural importance of whose noble designs the lead roof forms a crowning feature. The stately Pantheon at Rome, and in Venice the Byzantine Cathedral of St. Mark and the Palace of the Doges are characteristic examples. The ribbed lead roof is seen to accentuate the majestic lines of such celebrated domes as that of St. Peter's in Rome, of St. Paul's in London, and of the flawless Val-de-Grace in Paris.

It is evident that not only in the case of domed structures but also in those instances where the mansard or otherwise steeply-pitched roof is utilized, the architect must give particular consideration to the treatment of the roof as an integral part of the entire design. Thus, in the Opera House of Paris we find the lead roof carefully studied for the architectural effect produced by its ornamented ribs and standing seams. The Petit Palais and the massive buildings of the Louvre are further examples of renaissance architecture whose lead roofs have been designed to harmonize with and sustain the spirit of their exterior treatment.

In Gothic work many of the cathedrals of France, including Notre Dame of Paris and the Cathedral of Chartres, show the value of the standing seam lead roof as one in peculiar harmony with Gothic design. The same effect of unity between roofs and general exterior design is achieved in countless other buildings of varying architectural style throughout Europe.

From a practical standpoint the standing seam or rib is a highly desirable feature, forming a joint which provides a perfect seal against moisture and at the same time the flexibility necessary to take care of the expansion and contraction occasioned

by the extremes of temperature.

The standing seam roof, often made of tin orterne plate imported from Wales, is much in evidence in our own Georgian Colonial architecture, and is especially suited to the simple grace of this type of architecture. Leadclad, however, in thickness of coating, excels even the best of this Welsh plate, now unobtainable, and has double or triple the thickness of modern tin plate or galvanized materials. Unpainted, it will under normal conditions resist the weather for generations; with occasional painting it becomes practically everlasting.



*Christ Church, Bruton Parish, Williamsburg, Va. (About 1720)
Standing Seam Roof*



*Home of Mary Washington
Fredericksburg, Va.*

From the point of view of design, an outstanding characteristic of this type of roof lies in the seam or rib shadow which follows the angle or curve of the roof to the ridge or lantern; accentuating the roof lines and often providing the sole means of vertical emphasis frequently desirable in roofs of slight pitch.

The ribbed or standing seam lead roof gives at once the impression of durability and good taste. It is aesthetically satisfying not only because of its inherent qualities of color and texture, but also for the reason that in architecture practicality and beauty are seldom found at variance.

Architects are becoming increasingly conscious of the importance of roof design and it is being studied by them with a view to line, color, and texture. Substantial precedent for lead or metal-covered roof exists on all sides, whether the design involved be one of Tudor, Renaissance, or Georgian character. Examinations of these buildings, in this country as well as abroad, will inevitably result in a broader appreciation of the possibilities of such roofs as applied to the architecture of today.

For standing seam or rib roofs, Leadclad is furnished in flat sheets or rolls of standard gauges and sizes.

Leadclad for Farm and Country

IN RURAL districts, Lead-clad roofings have advantages that are readily appreciated by practical men. For it has not always been easy to obtain roofing materials that afforded really satisfactory and permanent protection against fire, lightning, and weather, with the minimum of upkeep expense.

Leadclad shingles and tiles for country homes and schools, churches, filling stations, mercantile buildings, dairies, creameries, refreshment stands and dance pavilions, are not only

exceedingly attractive in appearance, but serve every purpose of true economy and permanence.

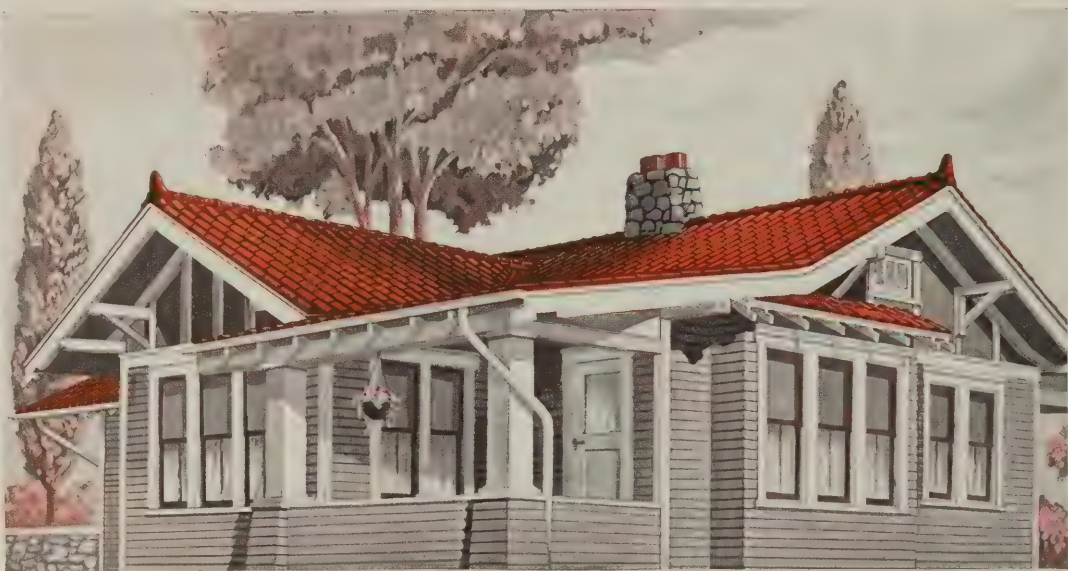
Many of the finest stock and dairy farms in the country have barns and other buildings covered with Leadclad, long life, standing seam roofing or shingles.

Leadclad is also furnished in all styles of V-crimp and corrugated sheets.

Where the home, harvest, and live stock are protected by Leadclad roofs,



*Farm buildings roofed with Leadclad shingles or standing seam roofing
are safe from roof troubles*



*Residence of Dr. F. E. Weddigan,
Williamsport, Pa.
Roofed with Leadclad Spanish tile*

a feeling of safety and security against lightning, fire, and roof troubles is enjoyed to the fullest extent.

A system of lightning rods is superfluous on a Leadclad roof, for a Leadclad roof, with a connection to the ground, is the best lightning protection obtainable. The saving on this account alone sufficiently compensates for its slightly higher first cost. The elimination of repainting alone (unless for the sake of appearance) makes Leadclad an actual economy in the long run.

The considerations in favor of Leadclad as compared with other roofing materials are of course very much the same for both city and country; but they are here reviewed with special emphasis on suitability

for all rural building requirements.

With respect to beauty, the roof of a building in the country demands even more attention than it may in city surroundings because the open spaces on all sides expose it so much to view.

There is an appropriate Leadclad product for every roofing need or purpose.

The different materials and grades are favored according to taste, character of building, or natural conditions of use. For convenience, we name them again; Leadclad Copper, Leadclad, Hand-dipped Galvanized, Red Painted, Green Painted, or Tight Coat Galvanized. Each is designed to give the utmost in value and satisfaction for the roofing investment.

THE INEVITABLE COMPARISON

“*C*OMPARISONS are odious,” but to the architect or home builder, forced to choose from among a number of roofing materials, comparison is necessary and unavoidable.

As an aid in making this choice, the reader will find below a few of the obvious advantages and disadvantages of several of the better known types of roofing materials.



Wood Shingles—These hardly need to be considered, as the fire hazard has made them unpopular in both town and country, and the owner of a building with a wood shingle roof is penalized heavily by a high fire insurance rate.

Wood shingles do not offer the slightest protection against fire or lightning—the weather rots them—the sun curls and splits them.

Slate—It should be borne in mind that there are many grades of slate. No one can deny that heavy slate of the best quality has its good points.

It is equal in weather resistance to Leadclad, and has much of the same appearance of beauty and refinement.

However, slate of best quality and adequate thickness weighs from five to ten times as much as Leadclad metal shingles, and are very costly.

The lighter and cheaper grades of slate are a source of continual anxiety and expense. They are easily broken

by alternate freezing and thawing, causing leaks which damage the ceilings below. Such leaks are difficult to repair without breaking more slates, and causing new leaks.

Slate roofs do not catch fire, but are often cracked and destroyed by the intense heat of a neighboring fire.

One of the valid objections to slate for roofing purposes is the fact that it is a non-conductor of electricity. Upon being struck by a bolt of lightning it is instantly shattered to fragments, and usually the house is destroyed.

Clay Tiles—For sheer beauty of texture and outline no roof surpasses red Spanish clay tiles.

Their capacity for dignifying and enriching the structure upon which they are used, and harmonizing with the natural background, is not equalled by any other type of roofing.

Unfortunately they are limited in use to such buildings as can support their great weight—nearly a ton to

the hundred square feet in area.

They are made both glazed and unglazed, the former being much more expensive than the latter.

The unglazed tiles are porous, have the tendency to absorb soot and smoke from the air and become dingy and grimy in appearance.

Of course, it is impractical to clean them.

The joints of Spanish clay tiles are closed with cement, and any settling of the house breaks them open, making a harbor for sparrows and their nests. However, to sum up, the greatest objection to clay tiles is their great weight, and the fact that they offer no safeguard against lightning.

Composition Roofing—This general term embraces so many widely differing grades of material that it is difficult to treat them in a general way.

There are several roofings made of composition materials which are in general character comparable with slate, being rigid and more or less breakable. These, however, are very expensive, and very little related to the roofing material known generally to the building public as "composition."

The multi-colored material known by this term owes its popularity to the fact that it is cheap, quickly applied, and bright in appearance.

It has a body of felt, usually saturated with petroleum asphalt, and surfaced with colored material in various patterns. Its chief weakness is its failure to withstand the heat of the sun, the oils drying out rapidly, leaving the felt base hard and brittle.

In this condition snow, ice, sleet, or hail find little resistance to their attack, and leakage is the result. Although not inflammable when cool, once preheated it burns with fierce heat.

Of course it is not lightning-proof, as it is a poor conductor. It has little tensile strength, and does not withstand abrasion. For this reason, where it is used, metal is usually employed for gutters and spouting.

The asphalt saturant contains a percentage of sulphur and other chemicals which unite with rain water to form an acid very destructive to all forms of metal, including zinc and copper. For this reason the upkeep of gutters is a trying problem where these roofs are used.

Glendale metal roofs have none of these objections or disadvantages.

They are absolutely fireproof, and when furnished with a ground connection, are proof against damage by lightning.

Glendale metal roofs are storm-proof in any climate, and do not warp, split, or decay when exposed to extremes of temperature. They will not dry out, rot, curl, crack, warp

or break. Hail, ice, snow, and the heat of the sun do not affect them. They contain no chemicals to destroy other metal work, or injure the walls of the building.

Glendale Spanish tiles possess all the beauty of the clay tiles.

The taper in width and height, so characteristic of the Spanish clay tiles, is faithfully preserved in Glendale Spanish tiles, a feature not found in other metal tiles.

Their moderate weight (about one-tenth as much as that of clay tiles) permits their use upon modern houses

of light construction, and their fire-proof and lightning-proof features appeal strongly to modern builders.

Glendale Spanish Tiles are absolutely stormproof and leakproof, and no amount of settling will throw them out of line. The joints are tight, and there are no openings for gathering leaves, birds' nests, and the like. They are adapted for use upon all classes of buildings, both great and small; they are fire- and lightning-proof, long wearing, and much less expensive than clay tiles, both in material and in application.



*Christ Church, Newgate, London
Sir Christopher Wren, Architect
Standing Seam Roof*

Leadclad Copper Gutters and Spouting

WE HAVE called attention elsewhere in this book to the fact that the valleys, gutters, and downspouts are called upon to stand the severest service of any section of a roof.

Valleys and gutters stand full of ice and snow in the winter months—birds' nests and fallen leaves dam them up, allowing water to stand in them for a large part of each year.

With an eye to the alignment of eaves line and eaves gutters, there is a general reluctance upon the part of designer and builder to give gutters and eaves troughs enough fall to drain them thoroughly.

This condition is often made worse by slight settling of the house foundations, sometimes resulting in the outlet actually being the highest point of the gutter, precluding the possibility of any drainage at all.

Under these conditions, the gutters become, in effect, long tanks.

In soft coal burning sections, the soot deposits, containing sulphur and other chemicals, turn the water held in these tanks into acid solutions, which corrode and eat the valleys and gutters. Even if no sulphur is present the slow evaporation of the liquid cannot but have harmful effects.

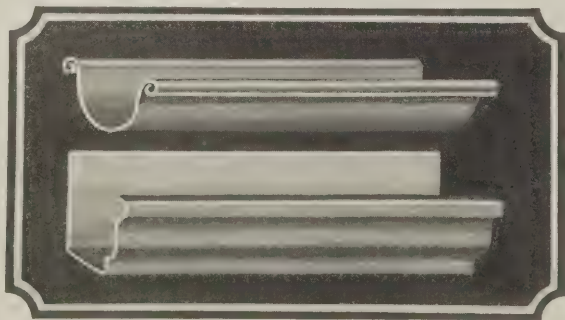
Rainwater that falls upon the main body of the roof is dried off by the wind and sun, but the moisture in the seams and folds upon the inside of the downspouts remains to be *slowly* evaporated.

Because of these facts, frequent replacement of gutters and downspouts has been looked upon as an incurable evil.

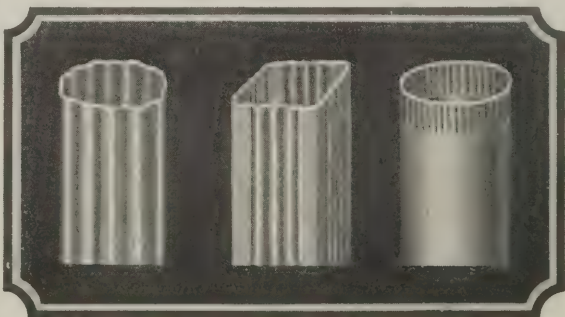
It was to cure this evil, long considered incurable, that we developed Leadclad copper valleys, gutters, and downspouting.

Copper, itself a highly *resistant* metal, is jacketed with lead, the *imperishable* metal.

Why—you say?



Leadclad can be obtained in box gutter form or in any style of eaves trough



Leadclad conductor pipe is obtainable in all standard shapes and sizes



Home of Mr. Frank Webb, Glendale, W. Va., Plainfield style shingle roof has been in service for 23 years without repairs and is still tight and serviceable

The experience of the thousands who have suffered disappointments in their attempts to solve the problem with copper alone.

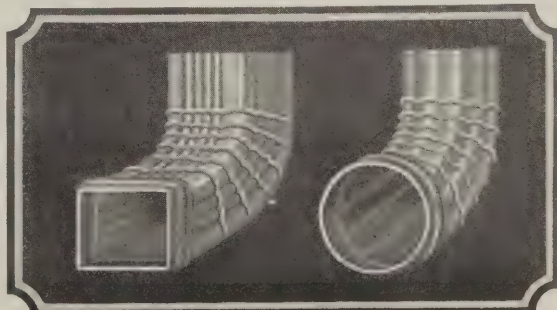
That is the answer.

Then, in addition to the fact that copper has proved inadequate to meet the situation alone and unprotected, there is the dislike of the many for the appearance of copper after being exposed to the weather.

Copper, in many instances, acquires patches of yellowish green,

in others a rusty brown, which to the aesthetic eye is not artistic or desirable.

Copper is easily soluble in acids, and when exposed to the action of sulphuric acid, becomes patched with



Lead-clad shoes for conductor pipe outlast ordinary shoes many times over. They remain rustproof years longer



The Leadclad Spanish tile roof is an important element in the beauty of this Dutch Colonial type of home

blue. Those readers who are acquainted with blue vitriol know that it is sulphate of copper—copper that has been dissolved in sulphuric acid.

Lead, on the other hand, is not sensitive to the acids, and under the assaults of the elements, weathers to a soft, slaty gray, which mellows as time goes on.

The combination of copper, jacketed with lead, is one that is ideal for the drainage section of your roof, and one that renders unnecessary any replacement or maintenance as long as roof or house may stand.

In Leadclad Copper we offer a superlative product for its intended uses, affording all the advantages to be found in any alternative material whatsoever, and with none of the drawbacks that have been unavoidable heretofore.

The cost? The installation of Leadclad copper gutters and downspouts will not add *one-half of one per cent* to the cost of your house, and will be paid for over and over again by saving in maintenance cost through the years. This statement is based on the experience of many users.

Painting Leadclad

THE soft gray effect of the natural lead is often deemed very desirable by many architects and builders. On the other hand, many home owners prefer to have the roof painted to contrast with the rest of the house.

For this reason we furnish Leadclad roofing in terra cotta, bright red, or moss green, to those who desire it.

Many users prefer to paint the roof after it is completed and for them we have our own special paint, the result

of years of experience in painting metal, put up in suitable packages. This is the only paint we know of which will not blister and peel off under intense heat and long exposure.

Whether you prefer the roof in natural lead or painted, we would strongly recommend that all flat decks and the inside of all gutters and eaves troughs be given a coat of paint after installing. It will add years to their life and service.



Leadclad shingles, Salem pattern, was the happy choice for this substantial English type of home. Left unpainted, the Leadclad surface soon weathers to a mellow gray



*A Texaco service station, Cortland, N. Y.
Leadclad Spanish tile roof*

Re-roofing

BECAUSE of its lightness and strength, metal roofing is particularly well adapted to re-roofing purposes. This is especially true of metal shingles or tile which can be applied directly over old wood shingles or composition roofing, thereby eliminating the trouble and expense of ripping off the old roof. There is an actual physical advantage, often, in following this plan, as the old material remaining underneath affords extra insulation to make the building warmer in winter and cooler in summer. Recent studies of heat losses in cold weather and of the possibili-

ties of heat exclusion in torrid weather have been very enlightening. We recommend applying new roofs over old wherever it is found practicable.

Glendale Shingles or tile laid over old roofing will make a more permanent installation than any other type of roofing because the strong, tight, yet flexible side lock ties the entire roof into one unit, giving the maximum opportunity for expansion and contraction without stress at any point. The comparison between Glendale and other types of roofing, in these respects, has been more fully presented on another page.

Beautifying Commercial Buildings

The roadside structure for commercial purposes needs a good looking roof. Whether it be a refreshment booth, a gasoline station, or some other building intended to attract the public, it is likely to stand in a rather conspicuous place—the more conspicuous the better for business. It is usually rather low, quite often of only a single story; and therefore, the roof comes very much into view. It may stand in a natural setting; and when people travel for pleasure they resent anything untidy or ill-looking that mars the effect of an otherwise inviting scene.

Enterprising men and women in their little individual enterprises and great national concerns in spreading their network of service out over the country, have learned to recognize this fact. It pays to keep these little establishments dressed up. Public spirited persons of wealth have even offered rewards for the best designed and best kept “hot dog” stand, bathing pavilion, or what not. And wherever you see a praiseworthy example, the roof is a striking part of its fine appearance.

No roofs are more practical, more economical, or more satisfactory in



*Diamond Filling Station, Bristol, Tenn.
Lead-clad Spanish tile roof*

service than Glendale tiles or shingles; and they are unsurpassed in decorative possibilities, whether colorful or quiet effects are desired.

A Glendale roof will make a lasting contribution to the attractiveness of any small commercial building, and of the neighborhood as a whole.

LEADCLAD ROOFS:

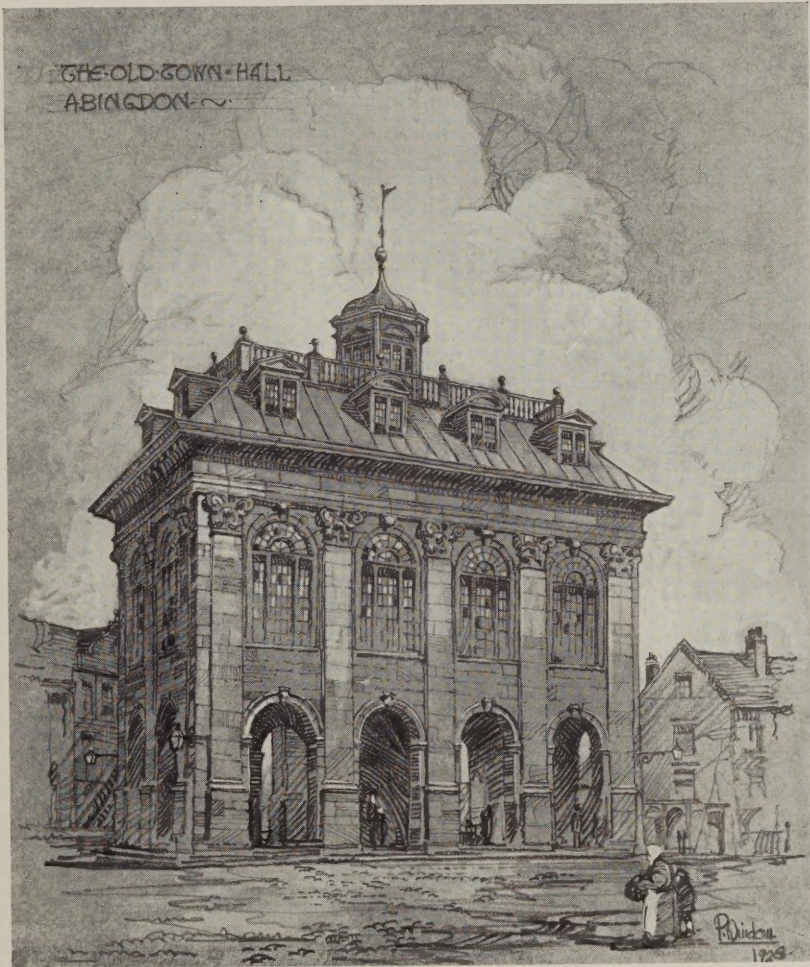
Leadclad; Leadclad Copper; Hand Galvanized
Terne Plate; Painted Terne Plate; Tight
Coated Galvanized Steel

WHEELING METAL & MANUFACTURING CO.

WHEELING, W. VA.



*Highway places of entertainment, dining and dancing, when roofed with
Leadclad Spanish tiles, are paying investments because they attract the public*



*Famous Town Hall of Abingdon, Berkshire, England, built in 1677.
Attributed to that Master Architect, Inigo Jones
Rib Roof*

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LEADCLAD
REG. U. S. PAT. OFFICE

*Made in Glendale
Since 1912*